UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,301	07/30/2003	Ross H. Hill	060937-0143	9133

24341 7590 02/03/2005

MORGAN, LEWIS & BOCKIUS, LLP.
2 PALO ALTO SQUARE
3000 EL CAMINO REAL
PALO ALTO, CA 94306

EXAMINER	
COLEMAN, WILLIAM D	

ART UNIT	PAPER NUMBER
2823	

DATE MAILED: 02/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/630,301	HILL ET AL.	
	Examiner	Art Unit	
	W. David Coleman	2823	

-- Th MAILING DATE f this communication appears on th c v r sh et with th correspondence addr ss --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,12-34 and 36-42* is/are rejected.

7)☒ Claim(s) *8,11 and 35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *01/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-42 are rejected under 35 U.S.C. 102(b) as being anticipated by Uchida et al., U.S. Patent 5,849,465.

3. Uchida discloses the inventions as claimed. Please see **FIGS. 1-16**, where Uchida teaches the claimed limitations.

4. Pertaining to claim 1, Uchida teaches a method for forming a pattern on a substrate, comprising:

applying a precursor (Ethyl acetacetate, see column 13, line 62) comprising at least one metal (titanium) to a substrate to form a precursor layer;

exposing a predetermined portion of the precursor layer; and

developing the predetermined portion of the precursor layer, thereby at least substantially removing the predetermined portion from the substrate and forming a pattern on the substrate comprising a remaining portion of the precursor.

5. Pertaining to claim 2, Uchida teaches the method of Claim 1, wherein the precursor comprises a molecular precursor.

6. Pertaining to claim 3, Uchida teaches the method of Claim 1, wherein the precursor comprises particles in contact with at least one ligand (column 3, line 30).

7. Pertaining to claim 4, Uchida teaches the method of Claim 3, wherein the particles comprise sol particles (column 3, lines 17-68).

8. Pertaining to claim 5, Uchida teaches the method of Claim 3, wherein the particles comprise microparticles.

9. Pertaining to claim 6, Uchida teaches the method of Claim 3, wherein the particles comprise nanoparticles.

10. Pertaining to claim 7, Uchida teaches the method of Claim 3, wherein the particles comprise ceramics.

11. Pertaining to claim 9, Uchida teaches the method of Claim 4, further comprising transforming the precursor into a gel (i.e., polyermerizeation).

12. Pertaining to claim 10, Uchida teaches the method of Claim 1, wherein the precursor comprises Ti(Pr'O)2(EAA)2.

13. Pertaining to claim 12, Uchida teaches the method of Claim 1, wherein said exposing comprises photochemically reacting, photothermally reacting and combinations thereof.

14. Pertaining to claim 13, Uchida teaches the method of Claim 1, wherein said exposing comprises radiating the predetermined portion of the precursor layer with electromagnetic radiation.

15. Pertaining to claim 14, Uchida teaches the method of Claim 1, wherein the electromagnetic radiation comprises ultraviolet radiation (column 10, lines 3-6).

16. Pertaining to claim 15, Uchida teaches the method of Claim 1, wherein said developing comprises contacting the first predetermined portion with a polar solvent (see **FIG. 13**).

17. Pertaining to claim 16, Uchida teaches the method of Claim 1, wherein said developing comprises contacting the first predetermined portion with a protic solvent (column 8, lines 4-13).

18. Pertaining to claim 17, Uchida teaches the method of Claim 1 further comprising: exposing a second predetermined portion of the precursor layer; and developing the second predetermined portion of the precursor layer, thereby at least substantially removing the second predetermined portion from the substrate and forming a second pattern on the substrate comprising a second remaining portion of the precursor (see FIG. 13).

19. Pertaining to claim 18, Uchida teaches the method of Claim 1, further comprising pre-exposing the precursor layer to energy before said exposing.

20. Pertaining to claim 19, Uchida teaches the method of Claim 18, wherein said pre-exposing comprises photochemically reacting, photothermally reacting and combinations thereof.

21. Pertaining to claim 20, Uchida teaches the method of Claim 18, wherein the pre-exposing comprises radiating the predetermined portion of the precursor layer with electromagnetic radiation.

22. Pertaining to claim 21, Uchida teaches the method of Claim 18, wherein the electromagnetic radiation comprises ultraviolet radiation.

23. Pertaining to claim 22, Uchida teaches the method of Claim 18, wherein the pre-exposing further comprises selecting a predetermined fraction of a minimum energy necessary for developing the predetermined portion of the precursor.

24. Pertaining to claim 23, Uchida teaches the method of Claim 18, further comprising post-exposing the precursor to energy after said exposing step.

25. Pertaining to claim 24, Uchida teaches the method of Claim 1 further comprising post-exposing the precursor to energy after said exposing step.

26. Pertaining to claim 25, Uchida teaches the method of Claims 23 or 24, wherein said post-exposing comprises photochemically reacting, photothermally reacting and combinations thereof.

27. Pertaining to claim 26, Uchida teaches the method of Claims 23 or 24, wherein the post-exposing comprises radiating the predetermined portion of the precursor layer with electromagnetic radiation.

28. Pertaining to claim 27, Uchida teaches the method of Claim 23 or 24, wherein the electromagnetic radiation comprises ultraviolet radiation.

29. Pertaining to claim 28, Uchida teaches an electronic component formed by a process comprising:

applying a precursor comprising at least one metal to a substrate to form a precursor layer;

exposing a predetermined portion of the precursor layer; and developing the predetermined portion of the precursor layer, thereby at least substantially removing the predetermined portion from the substrate and forming a pattern on the substrate comprising a remaining portion of the precursor.

30. Pertaining to claim 29, Uchida teaches the electronic component of Claim 28, wherein the precursor comprises a molecular precursor.

31. Pertaining to claim 30, Uchida teaches the electronic component of Claim 28, wherein the precursor comprises particles in contact with at least one ligand.

32. Pertaining to claim 31, Uchida teaches the electronic component of Claim 30, wherein the particles comprise sol particles.

33. Pertaining to claim 32, Uchida teaches the electronic component of Claim 30, wherein the particles comprise microparticles (please note, because Applicants have not disclosed how the particles are actually measured, the Examiner takes the position that Applicants are purchasing the particles having a predetermined size from the vendor)

34. Pertaining to claim 33, Uchida teaches the electronic component of Claim 30, wherein the particles comprise nanoparticles.

35. Pertaining to claim 34, Uchida teaches the electronic component of Claim 30, wherein the particles comprise ceramics.

36. Pertaining to claim 36, Uchida teaches the electronic component of Claim 31, further comprising transforming the precursor into a gel.

37. Pertaining to claim 37, Uchida teaches the electronic component of Claim 28, wherein the process further comprises pre-exposing the precursor to energy before said exposing.

38. Pertaining to claim 38, Uchida teaches the electronic component of Claim 28, wherein the process further comprises post-exposing the precursor to energy after said exposing-

39. Pertaining to claim 39, Uchida teaches the electronic component of Claim 37, wherein the process further comprises post-exposing the precursor to energy after said exposing.

40. Pertaining to claim 40, Uchida teaches a precursor comprising:

a metal-containing material comprising Ti(Pr'O)Z(EAA)z or any isomer thereof; and a casting solvent.

41. Pertaining to claim 41, Uchida teaches a film of material comprising Ti(Pr'O)2(EAA)2 or any isomer thereof.

42. Pertaining to claim 42, Uchida teaches an electronic component comprising: a substrate; and a metal-containing material comprising Ti(Pr'O)z(EAA)z or an isomer thereof applied to said substrate.

Objections

43. Claims 8, 11 and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

44. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. David Coleman whose telephone number is 571-272-1856. The examiner can normally be reached on 9:00 AM-5:00 PM.

45. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

46. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

W. David Coleman
Primary Examiner
Art Unit 2823

WDC